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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,020	04/07/2004	Jay M. Quimby	166538011US1	9233

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PERKINS COIE LLP
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EXAMINER

KNOX, STEWART

ART UNIT	PAPER NUMBER
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3641

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/821,020

Applicant(s)

QUIMBY ET AL.

Examiner

Stewart T. Knox

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Informalities

1. The Examiner acknowledges the resolution of all previous rejections regarding the Specification, Drawings, and rejections under 35 U.S.C. 112-2nd paragraph.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 5 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donovan (6,354,181) in view of Gregg (6,431,094) and Lerner (5,607,654). Donovan discloses a system for rendering chemical weapons material less hazardous (col. 1 lines 22-28) comprising a detonation chamber (figure 5, element 21), an emission treater (23) wherein the emission treater is adapted to treat gas from the detonation of the chemical weapons material (col. 6 lines 13-22), yielding a treated gas suitable for venting to atmosphere. Donovan does not teach an expansion chamber, means for controllably cooling the gas, a substantially dry residual waste stream, or an alkaline powder.
4. Gregg teaches an expansion chamber (figure 2, element 2) (or second chamber) in fluid communication with the detonation chamber (3) and the emission treater (right side of figure 2) wherein the treater includes means for controllably cooling the gas (col. 3 lines 48-56, col. 4

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lines 11-27) from the detonation without introducing a liquid into the gas. The expansion chamber is provided in fluid communication with the detonation chamber in order to provide the required volume for containment of the gas and heat within reasonable tolerances (col. 5 lines 23-44), and the means for cooling is provided to assure that the system operates within safety standards and that it complies with applicable air pollution control standards. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Donovan to include an expansion chamber and a cooling system as taught by Gregg since such a modification would allow room for the gases to expand more naturally and would help to meet environmental standards for weapons disposal.

5. In regards to claims 1 and 3, Lerner teaches a conduit for the introduction of alkaline powder into the gas being treated. Lerner teaches the use of dry alkali solids or powders being introduced into combusted gas in order to remove acidic compounds from the gas. Lerner shows this as lime (figure 2, element 51) in a spray-scrubber (52). Lerner also states that the goal of the invention is to avoid producing a liquid waste stream (col. 4 lines 10-11), and discharging solid materials to be disposed of in an environmentally secure form (col. 4 lines 20-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Donovan and Gregg to include the alkaline powder injection as taught by Lerner, since such a modification would allow for the de-acidification of the gases being treated and further their acceptability for release into the environment. See column 2, in particular lines 24-33.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donovan, Gregg, and Lerner as applied to claim 1 above, and further in view of Donovan (6,705,242). Donovan and Gregg teach the claimed invention except for an antechamber. Donovan (6,705,242) teaches

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an explosive chamber sealing apparatus comprising an antechamber (11) that can be sealed from the inner chamber of the detonation chamber, including an air inlet and outlet (3) configured to flush gas in the antechamber (abstract) in order to prevent toxins from being released into the atmosphere. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Donovan and Gregg to include the antechamber sealing apparatus of Donovan, since such a modification would provide the system with a sealed airtight chamber door in the event that toxins are released from combustion or explosion of munitions.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donovan, Gregg, and Lerner as applied to claims 1 and 3 above, and further in view of Lamnevik (5,481,062).

Donovan in combination with the others teaches the claimed invention except for the presence of a catalytic converter. Lamnevik teaches the presence of a catalytic converter in order to control the generation of harmful combustion products from explosives (col. 1 lines 46-60, claims). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Donovan, Gregg, and Lerner with the catalytic converter of Lamnevik, since such a modification would provide the system with means to further ensure compliance with environmental standards and minimize risk to personnel.

8. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being obvious over Donovan, Gregg, and Lerner '654 as applied to claims 1, 3, and 4 above and further in view of Lerner (4,865,828).

Donovan in combination with the others teaches the claimed invention including an emission treater with a reactive solids conduit (Lerner '654, figure 2, element 51) configured to introduce an alkaline powder into the gas being treated. They do not teach a heated gas conduit. Lerner

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'828 teaches, in addition to the use of alkaline powders to reduce the acidity of a gas being treated, that it is known to use an air heater to increase the temperature of the gas being treated so that it is above the dewpoint temperature of the gas, and thus will reduce condensation in the tubes of the apparatus (col. 3 lines 1-17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system as taught by Donovan, Gregg, and Lerner to have a conduit to deliver heated gas to modulate the gas temperature to an appropriate range for alkaline solids reaction since such a modification will allow for the controllable adjustment of the temperature of the gas to avoid condensation.

9. In regards to the reaction temperatures of between 600° and 1200° F, it would have been obvious to one of ordinary skill in the art at the time the invention was made to heat or otherwise control the temperature of the alkaline reaction in the above temperature range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being obvious over Donovan, Gregg, and Lerner as applied to claim 1 above, and further in view of Voorhees (6,352,040). Donovan in combination with the other references teaches the claimed invention except for a pulse limiter. The pulse limiter as described reads on a valve used to vary the size of an opening. Voorhees teaches the use of valves between chambers in combustion systems in order to control the quantity of air coming into the duct and vary the degree of exhaust gas velocity (col. 4 lines 59-67, col. 5 lines 1-13). It is well known in the art that many types of emission treaters can treat only a certain volume of gas at a time, and varying the size of an opening so that it is larger at a lower pressure and smaller at a higher pressure will ensure that the gas flow remains relatively

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constant. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of Donovan, Gregg, and Lerner with a valve as taught by Voorhees, since such a modification would provide the system with means to ensure that the volume and velocity of air entering the emission treater can be controllably adjusted.

11. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable and obvious over Donovan, Gregg, and Lerner as applied to claim 1 above and further in view of Hot-Gas Decontamination (IDS). Donovan, Gregg, and Lerner teach the claimed invention including Gregg teaching a means for heating an inner surface (figure 7, element 29) of the detonation chamber (3c) which, because it is contained within the expansion chamber, will necessarily heat the expansion chamber as well. The heating is done in order to effect a detonation of the weapon being neutralized. Donovan and Gregg do not teach a second heating means or an operating temperature range of 120°—300° F. Hot-Gas Decontamination teaches a second heating means for heating the inner surface to a higher decontamination temperature for use in periodically decontaminating the detonation chamber, in order that it may be sold or reused without contaminants instead of destroyed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Donovan and Gregg with the decontamination heating means of Hot-Gas, since such a modification would allow the system to be cleaned, reused, and sold without destroying the chamber.

12. In regard to the operating temperature range of 120°—300° F, it would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the inner wall of the detonation chamber to the range above, since it has been held that where the general

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conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

13. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being obvious over Donovan, Gregg, and Lerner as applied to claim 1 above and further in view of Hay (4,875,420). Donovan and Gregg disclose the claimed invention except for the system being composed of modules. Hay teaches that hazardous waste treatment systems can be divided into modular systems comprising detonation chambers, emission treaters, and expansion chambers in order to transport more easily to and from field locations. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Donovan and Gregg to be modular as taught by Hay, since such a modification would allow the weapon destruction system to be easily transported and used in various locations.

14. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donovan, Gregg, and Lerner as applied to claim 1 above, and further in view of Hladun (4,320,709). Donovan and Gregg disclose the claimed invention including a charge of energetic material (16). They do not disclose the atmosphere having at least 25% oxygen by weight. Hladun teaches that it is known to enrich the atmosphere of a detonation chamber with oxygen in order to optimum combustion conditions (col. 2 lines 41-47, col. 4 lines 35-44), but does not specifically disclose the value of 25% by weight. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the oxygen enrichment value equal to at least 25%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

15. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donovan, Gregg, and Lerner as applied to claim 1 above, and further in view of Voorhees (5,727,481). Donovan and Gregg teach the claimed invention except for a mechanical loader. Voorhees teaches a mechanical loader (figure 2, element 88) operatively associated with the detonation chamber and adapted to deliver the chemical weapons material to the detonation chamber, so that items may be easily loaded and ashes/debris may be easily removed after incineration (col. 5 lines 37-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Donovan and Gregg to include a mechanical loader as taught by Voorhees, since such a modification would provide the system with an easy way to load and unload objects from the detonation chamber.

Response to Arguments

16. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. In particular, Lerner is now cited above as yielding a substantially dry waste stream. It is further noted that the use of a wet scrubber during a phase of treatment does not necessarily mean that the products released from treatment cannot be dry. See Lerner, which teaches the use of both a wet and dry scrubber, in such a combination that the waste products ultimately released are dry.

17. Applicant's arguments with respect to Gregg are not persuasive. The assembly of Gregg is cited for use with hazardous and reactive waste according to Environmental Protection Agency waste code D003 (col. 1 line 8) which includes all reactive wastes, wastes that generate toxic vapors in water, or wastes capable of detonation. In particular, this includes cyanide, a known

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chemical weapon. In response to applicant's argument that Gregg does not teach a transportable system, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Further, applicant has provided no additional structure that makes the modular system unique or any technical problem that has been solved in the area of making an apparatus modular and transportable.

18. In regard to Applicant's arguments on Lerner '654, see the cited portions of the reference as used in the rejection above. Although Lerner teaches both a wet and dry scrubber, the purpose of the invention is to release solid, non-liquid (i.e. substantially dry) waste materials.

19. In regard to Applicant's arguments on Lamnevik, the Examiner notes that the sections of Lamnevik used in teaching are in the same problem-solving area of the references being used. In particular, the problem to be solved is how to treat various combinations of toxic gases coming off of the explosion or combustion of hazardous or explosive material. Lamnevik addresses the presence of excess nitrogen oxides coming off of the combustion of explosives. The test for obviousness is not whether the treatment scheme of Lamnevik could be wholly incorporated into the treatment scheme of the other references, but rather than Lamnevik suggests a treatment for a type of material that might be released by the destruction of weapons in a chamber.

20. In regards to the arguments on claims 6-8 and 12, see the new references provided above.

21. In regards to the arguments on "Hot-Gas Decontamination," Applicant asserts that there is no motivation to combine. However, as stated in the reference, "Hot-gas decontamination

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provides a rapid, cost effective method to achieve required removal efficiencies....[such that] process equipment is not damaged and can be reused or sold” (2nd paragraph). The motivation to combine is contained in the stated purpose of the invention.

22. In regards to the arguments on Hay, Hladun, and Voorhees, it is noted that wet scrubbers have been discussed above and all other arguments have been addressed.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stewart T. Knox whose telephone number is (571) 272-8235. The examiner can normally be reached on Monday through Thursday, 8:00 AM to 6:30 PM.

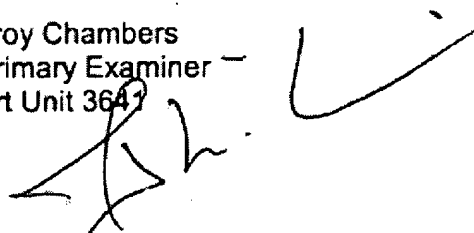
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on (571) 272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Stewart Knox

Troy Chambers
Primary Examiner
Art Unit 3641



03/01/2007